



Validity Validation, Validation, Confirmatory Factor Analysis of school climate questionnaire (MSCQ) parent version in Iranian Schools

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Article Info	ABSTRACT
Article type: Research Article	<p>The present study aimed to examine the validity and reliability and to conduct a confirmatory factor analysis of the Parents' Perceptions of School Climate Questionnaire (2020) in Iranian schools. The study population consisted of the parents of all sixth-grade elementary school students in Isfahan during the 2019–2020 academic year. Using random sampling, 300 parents were selected as the study sample. The questionnaire was distributed to parents of sixth-grade students through online messaging platforms. Data were analyzed using SPSS version 22 and AMOS version 24, employing confirmatory factor analysis. The content validity of the questionnaire items—including student support, home–school relationships, student relationships, student–teacher relationships, academic environment, and interpersonal justice—was reported to be satisfactory. Based on the factor loadings, all items demonstrated acceptable factor loadings; although items 1 and 25 were at an acceptable level, the remaining items showed highly satisfactory factor loadings. Therefore, all items were considered to have appropriate factor loadings.</p> <p>Considering the factor loadings and the correlations among the questionnaire components, the results indicated that the instrument possesses satisfactory construct validity. In addition, the Cronbach's alpha coefficients for the six components ranged from 0.73 to 0.94, indicating desirable internal consistency. Furthermore, the model fit indices confirmed the overall goodness of fit of the proposed model. Accordingly, given the favorable psychometric properties of this instrument, the questionnaire can be considered an appropriate tool for assessing parents' perceptions of school climate.</p>
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Introduction

The educational system is one of the most important, complex, and extensive social systems, with human beings and their education at the core of its activities. Countries around the world strive to create appropriate legal, administrative, and financial frameworks to expand educational opportunities and promote higher levels of schooling. By establishing and expanding educational and research institutions at preschool, secondary, and higher education levels in both urban and rural areas, societies attempt to provide opportunities for the development of talents, creativity, and innovation among individuals ([Safi, 2019](#)).

Within this system, schools represent one of the most significant social environments in students' lives, as they spend a substantial portion of their time in this setting and many developmental experiences occur within it ([Merristo & Eisenschmidt, 2014](#)). In such an environment, the nature of interactions among school members and the level of trust and cooperation among them create a distinctive social atmosphere commonly referred to as "school climate." In the educational literature, school climate is defined as a set of characteristics of the learning environment that shape students' academic and social experiences ([Zullig et al., 2010](#)). It encompasses the values, norms, relationships, and patterns of interaction among students, teachers, and administrators that influence the functioning and behavior of members within the school community ([Samadi & Shirzadi Esfahani, 2007](#)). Research indicates that school climate is an important factor influencing students' emotional, behavioral, and academic outcomes and can significantly affect their adjustment, mental well-being, and self-confidence ([Maxwell et al., 2017](#)).

School climate is considered a multidimensional construct composed of several elements. Key dimensions include the physical environment of the school, social relationships among members, the emotional atmosphere, and academic conditions that collectively shape students' learning experiences ([Haroun et al., 2010](#)). In another classification, [Way et al. \(2007\)](#) categorized students' perceptions of school climate into four components: teacher support, peer support, autonomy, and rule clarity or consistency. Similarly, [Meinhard et al. \(2010\)](#) introduced the concept of "classroom social climate," referring to the quality of relationships among students within the classroom, which plays a crucial role in shaping their educational experiences.

Alongside the role of schools, the family constitutes the first and most influential social context in a child's development. Theories emphasizing early childhood experiences and family communication patterns suggest that children's interactions with their parents and the ways in which their emotional and psychological needs are met play a critical role in shaping their personality structures and behavioral patterns in later life ([Bucket et al., 2012](#)). In fact, the emotional atmosphere of the family and parental child-rearing practices can significantly influence children's sense of self-efficacy, self-confidence, and social functioning ([Raach, 2010](#)). Therefore, factors such as parenting styles and attachment to parents may affect academic performance, learning behaviors, social competence, and students' perceptions of the school environment ([Meinhard & Brook, 2010](#)).

Research findings indicate that children who grow up in supportive family environments tend to demonstrate higher levels of self-confidence and social competence, whereas neglectful or negative family interactions may lead to negative beliefs about oneself and others, anxiety, and behavioral problems ([Chun & Nam, 2014](#)). Parental support for school-related activities has also been shown to increase students' interest in and engagement with educational and social activities at school ([Shen et al., 2016](#)). Moreover, positive parental perceptions of the school environment can enhance students' enjoyment of school activities, strengthen social interactions, and improve their self-confidence ([Morton et al., 2016](#)). In addition, a positive emotional climate within the family has been associated with fewer behavioral problems, lower levels of anxiety, and better academic performance among adolescents ([Chun & Dixon, 2011](#)).

Furthermore, research suggests that the psychological climate of the classroom, school environmental characteristics, and teacher support significantly influence students' academic motivation, task engagement, self-efficacy beliefs, and academic achievement ([Rashidi et al., 2015](#)). A school environment

characterized by safety, support, and mutual respect can provide an appropriate context for fostering students' academic enthusiasm and socio-emotional development. Likewise, parents who create supportive and interactive family environments play an important role in shaping their children's positive attitudes toward school and their academic goals ([Arjmand & Kazemian-Moghadam, 2019](#)).

Despite the importance of school climate, most existing research has primarily focused on students' or teachers' perceptions of this construct, while parents' perspectives have received relatively limited attention. However, parents represent one of the most influential social agents affecting children's educational experiences and may play a crucial role in shaping students' attitudes toward the school environment. Therefore, examining parents' perceptions of school climate can provide a more comprehensive understanding of factors influencing students' academic and social experiences.

Accordingly, the present study aims to develop and examine the psychometric properties of a questionnaire assessing parents' perceptions of school climate. In this study, school climate is examined across six dimensions: student support, home-school relationships, student-student relationships, student-teacher relationships, the academic environment, and interpersonal justice. Integrating these dimensions provides a more systematic evaluation of school climate and may contribute to a better understanding of students' behaviors and experiences within the school context. Therefore, the main research question of the present study is: Does the Parents' Perceptions of School Climate Questionnaire demonstrate acceptable reliability and validity?

Method

Sample and Sampling Method

This study employed a correlational research design and, more specifically, focused on test validation. The study population consisted of the parents of all sixth-grade elementary school students in Isfahan during the 2019–2020 academic year. According to Kline (2010), a minimum sample size of 200 participants is considered adequate for confirmatory factor analysis. To ensure greater statistical reliability, 300 participants were selected from the population using random sampling.

Specifically, two districts (Districts 3 and 4) were selected from the six educational districts of Isfahan. Due to the COVID-19 pandemic and the closure of schools for in-person attendance, the questionnaire was distributed to parents of sixth-grade students through online messaging platforms, including Telegram and WhatsApp.

Ethical considerations were observed throughout the study. Parents participated voluntarily, and they were assured that the collected data would be used solely for research purposes and would remain confidential. Finally, the data obtained from the 300 participants were analyzed using SPSS version 22 and AMOS version 24 through confirmatory factor analysis.

Tools Used

Parents' Perceptions of School Climate Questionnaire:

The Parents' Perceptions of School Climate Questionnaire was developed in 2020 by Grazia and Molinari. The instrument was adapted from the *Student Perceptions of School Climate Questionnaire* (Janosz & Bouthillier, 2007) through revising items and adding or removing several components to make it suitable for parental assessment. Ultimately, the parent-specific version was administered to 320 parents whose children had recently enrolled in four middle schools in Emilia-Romagna (northern Italy) and who were participating in a larger longitudinal project. Parents responded to the items using a 6-point Likert scale ranging from 1 = strongly disagree to 6 = strongly agree. To evaluate measurement invariance across comparable groups, a sample of 339 students was randomly selected from the larger student dataset.

The finalized questionnaire includes 27 items distributed across six components that assess parents' perceptions of their child's school climate. Higher scores indicate more favorable evaluations of the school environment. The components and their corresponding items are as follows:

- Student Support (Items 1–4)
- Home–School Relationships (Items 5–10)
- Student Relationships (Items 11–15)
- Student–Teacher Relationships (Items 16–19)
- Academic Environment (Items 20–24)
- Interpersonal Justice (Items 25–27)

According to Grazia and Molinari (2020), the Cronbach's alpha coefficients and the composite reliability indices (ω) for all components were satisfactory, providing evidence of adequate internal consistency. Additionally, all factors demonstrated significant positive correlations, supporting the theoretical coherence of the instrument.

Procedure

To examine the quality of the translation, all items were first carefully translated by an expert in English translation. In order to ensure the accuracy of the translation and its compatibility with the cultural context of Iranian schools, the translated version was reviewed and revised by specialists in educational sciences. Throughout all stages, efforts were made to preserve the originality of the questionnaire and maintain its similarity to the original instrument.

After translation, in order to evaluate the necessity of the items (Lawshe, 1975) and their relevance (Lynn, 1986), and to assess the Content Validity Ratio (CVR) and the Content Validity Index (CVI), the questionnaire was provided to a panel of experts consisting of five psychometric specialists and five individuals holding master's or doctoral degrees in educational psychology. The CVR for all items was equal to 1, and the CVI values ranged from 0.80 to 1.00. According to Gilbert and Prion (2016), when 10 experts are involved in assessing content validity, the minimum acceptable values are $CVI = 0.70$ and $CVR = 0.62$. Therefore, the content validity of the questionnaire was confirmed.

After establishing content validity, the questionnaire was distributed and the data were collected. To examine internal consistency and the reliability of the scale, item–total correlations, inter-item correlations, and Cronbach's alpha coefficients were calculated using SPSS version 22. Subsequently, a first-order confirmatory factor analysis (CFA) was conducted using AMOS version 24.

Result

Among the 300 parents who participated in the study, 252 (84%) were female and 48 (16%) were male. The age of the parents ranged from 28 to 57 years, with a mean age of 39.12 years. In terms of marital status, 283 participants (94.3%) were married and 17 (5.7%) were single. All participating parents had a child in the sixth grade. Among these students, 175 (58.3%) were girls and 125 (41.7%) were boys.

In the next step, descriptive statistics for the questionnaire components and the total score were calculated and examined. Table 1 presents the mean, standard deviation, and the correlation matrix of the components with each other as well as with the total questionnaire score.

Table 1. Correlations, Means, Standard Deviations, Skewness, and Kurtosis of the Study Variables (N = 300)

Variable	1	2	3	4	5	6	7
Student Support	1						
Home–School Relationship	./66**	1					
Student Relationships	./46**	./62**	1				
Student–Teacher Relationship	./60**	./63**	./63**	1			
Academic Environment	./60**	./67**	./63**	./74**	1		
Interpersonal Justice	./50**	./53**	./52**	./56**	./60**	1	
Attitude Toward School Climate (Total Score)	./77**	./86**	./81**	./84**	./87**	./73**	1
Mean	15/23	22/10	18/57	15/88	20/00	10/83	
Standard Deviation	2/76	3/99	3/59	2/59	3/25	2/34	15/22
Skewness	-./35	-./11	-./43	-./40	-./60	-./39	-./21
Kurtosis	-./01	-./08	./48	./32	1/15	./12	./14

$p < 0/01$

Based on Table 1, it can be observed that all components show positive and significant correlations with one another as well as with the total score, and all correlation coefficients are greater than the cutoff value of .30. According to Cohen (1992), correlations above this threshold indicate good internal consistency among the questionnaire components.

Furthermore, regarding the skewness and kurtosis indices, as shown in Table 1, skewness values range from -0.11 to -0.60 , while kurtosis values range from -0.01 to 1.15 . According to Kline (2015), absolute skewness values lower than 3 and absolute kurtosis values lower than 10 indicate that the data follow a normal distribution. Therefore, it can be concluded that the variables in the present study are normally distributed.

After examining the data, first-order confirmatory factor analysis (CFA) was conducted to assess the construct validity of the questionnaire. The results are presented in Figur 1, and the model fit indices are reported in Table 2.

Table 2: Model Fit Indices

CMIN	DF	CMIN/DF	RMSEA	RMSR	CFI	IFI	PNFI	PCFI
667/85	309	2.16	0.062	0.038	0.91	0.92	0.75	0.8

Based on the guidelines proposed by Kline (2011), the most informative indices for evaluating model fit include the chi-square divided by degrees of freedom (CMIN/DF), the Comparative Fit Index (CFI), the Root Mean Square Residual (RMSR), and the Root Mean Square Error of Approximation (RMSEA). According to Kline (2011), acceptable ranges for these indices are as follows: a CMIN/DF value between 1 and 3, a CFI value greater than 0.90, an RMSR value less than 0.05, and an RMSEA value below 0.08. Considering the values reported in Table 2, the model demonstrates an acceptable and satisfactory overall fit.

With regard to the additional indices reported in the table, acceptable values include an Incremental Fit Index (IFI) greater than 0.90, as well as Parsimonious Normed Fit Index (PNFI) and Parsimonious

Comparative Fit Index (PCFI) values above 0.50. As shown in Table 2, these indices also indicate that the model exhibits a good level of parsimony and overall fit.

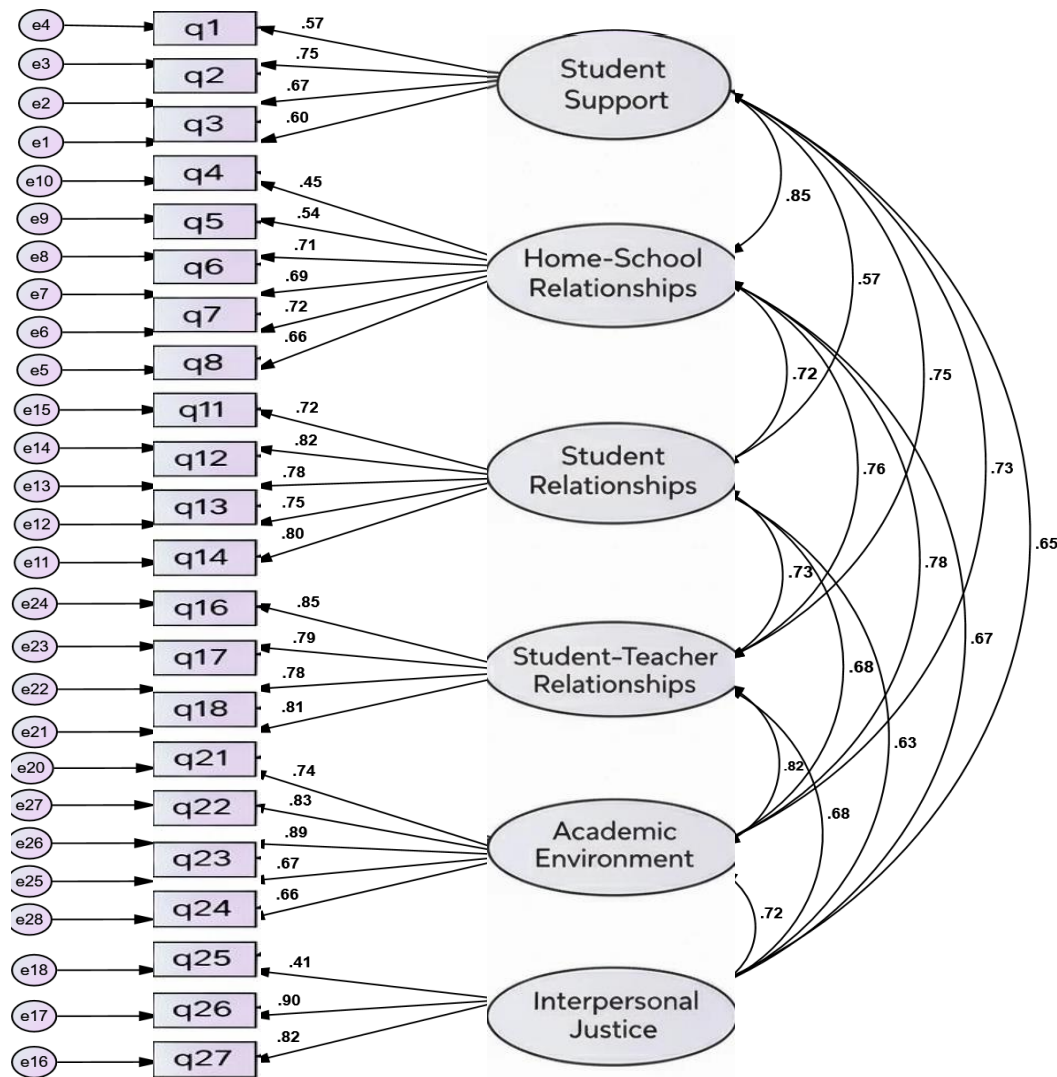


Figure 1: Confirmatory Factor Analysis (CFA) Model with Standardized Coefficients

As shown in Figure 1, and according to Kline (1994), factor loadings below 0.30 are considered weak, those between 0.30 and 0.60 are regarded as acceptable, and values above 0.60 are considered very good. Based on these criteria, it can be stated that, with the exception of items 1 and 25—which fall within the acceptable range—the remaining items demonstrate very strong factor loadings. Therefore, all items exhibit adequate factor loadings.

Considering the magnitude of the factor loadings and the correlations among the questionnaire components, it can be concluded that the questionnaire demonstrates satisfactory construct validity.

After specifying the measurement model, two reliability indices—internal consistency reliability (Cronbach's alpha) and composite reliability (CR)—were calculated to further evaluate the questionnaire. The results of these analyses are presented in Table 3.

Table 3. Cronbach's Alpha and Composite Reliability (CR) for the Study Variables

Variable	Cronbach's Alpha	Composite Reliability (CR)
Student Support	0/73	0/74
Home–School Relationships	0/79	0/82
Student Relationships	0/88	0/88
Student–Teacher Relationships	0/88	0/88
Academic Environment	0/86	0/87
Interpersonal Justice	0/73	0/77
Attitude Toward School Climate (Total Score)	0/94

As shown in Table 3, Cronbach's alpha coefficients range from 0.73 to 0.94. According to Nunnally and Bernstein (1994), values above 0.70 indicate acceptable reliability; therefore, all six components as well as the overall questionnaire demonstrate satisfactory internal consistency.

In factor analytic models, composite reliability (CR) is also considered an important indicator of reliability (Schumacker & Lomax, 2010). Table 3 indicates that all six components also show satisfactory composite reliability, as the CR values for the components exceed the acceptable threshold of 0.70.

Overall, the results of the reliability assessment indicate that item reliability (based on standardized factor loadings), internal consistency reliability (based on Cronbach's alpha values greater than 0.70), and composite reliability (based on CR values greater than 0.70) are all at acceptable and desirable levels.

In the next step, convergent and discriminant validity were examined to further assess construct validity. Three approaches are commonly used to evaluate convergent validity: factor loadings, composite reliability (CR), and the Fornell and Larcker (1981) criterion using the Average Variance Extracted (AVE).

Factor loadings were examined and confirmed in Figure 1, and composite reliability was assessed and confirmed in Table 3. The third approach, proposed by Fornell and Larcker (1981), evaluates convergent validity using the AVE index, where values greater than 0.50 indicate acceptable convergent validity. The AVE values are reported in Table 4 on the diagonal of the matrix and are presented in bold.

Table 4. Correlations and Average Variance Extracted (AVE) for the Study Variables

Variables	1	2	3	4	5	6
Student Support	.64					
Home–School Relationships	.66	.63				
Student Relationships	.46	.62	.77			
Student–Teacher Relationships	.60	.63	.63	.80		
Academic Environment	.66	.67	.63	.74	.76	
Interpersonal Justice	.50	.53	.52	.56	.60	.74

According to Table 4, the AVE values for the six components of the questionnaire range from 0.63 to 0.80, all of which are greater than the recommended threshold of 0.50. This indicates that the convergent validity of the questionnaire is confirmed.

Discriminant validity can also be assessed by comparing the AVE value of each construct with its correlations with other constructs. Discriminant validity is considered established when the AVE of a construct is greater than its pairwise correlations with other constructs. Based on Table 4, discriminant validity is clearly established for four components—Student Relationships, Student–Teacher Relationships, Academic Environment, and Interpersonal Justice—indicating a satisfactory level of discriminant validity. For the remaining two components—Student Support and Home–School Relationships—the AVE values are very close to their pairwise correlations with other constructs; therefore, although the criterion is not fully satisfied, the level of discriminant validity can still be considered relatively acceptable.

Discussion & Conclusion

The present study aimed to examine the validity, reliability, and confirmatory factor structure of the Parents' Perceptions of School Climate Questionnaire (2020) in Iranian schools. The findings indicated that the questionnaire demonstrated satisfactory content validity, construct validity, convergent and discriminant validity, model fit, item validity, internal consistency reliability, and composite reliability. Therefore, the instrument shows strong psychometric properties and can be considered a reliable and valid tool for assessing parents' perceptions of school climate. These findings are consistent with previous studies by [Johnson et al. \(2017\)](#), [Budd et al. \(2018\)](#), [Vakili-Yekan \(2021\)](#), [Salduzi \(2020\)](#), and [Emamgholi-Vand, Kadivar, and Pashasharifi \(2019\)](#), which also highlighted the relationship between school climate and parental perceptions.

Regarding the six dimensions of the questionnaire student relationships, student–teacher relationships, academic environment, interpersonal justice, student support, and home–school relationships it can be argued that since students spend a significant portion of their lives at school, the school environment and its climate are among the most important factors shaping their behaviors. Various elements within schools contribute to the formation of school climate, including teachers and staff behaviors, school culture and policies, the quality of interactions between teachers and students, available facilities, and instructional methods. In addition to fostering students' academic skills, schools provide opportunities for the development of social, emotional, and behavioral competencies. Moreover, schools and their climates can play a crucial role in promoting students' well-being, as many personality characteristics and health-related behaviors are formed within this environment during these formative years ([Bai & Esfahaninia, 2019](#)).

Researchers such as [Wang and Degol \(2016\)](#) suggest that school climate provides opportunities for students to achieve academic success while reducing behavioral problems and dropout rates. The scope of schools' educational and social activities shapes the quality of interactions among students, teachers, parents, and school staff, reflecting shared norms, values, and goals. Furthermore, school climate encompasses the quality of teaching and learning processes, social relationships within the school, and the organizational and structural characteristics of the school environment. Therefore, schools represent more than just places of academic instruction; they are environments where students learn how to build constructive social relationships, develop independence, and expand their emotional, behavioral, and cognitive capacities ([Emamgholi-Vand et al., 2019](#)).

According to Bandura's social cognitive theory, the environment and social context (such as the school setting) are among the primary determinants of behavior. Students learn various behaviors through implicit and observational learning from teachers, peers, and family interactions. The behavior of peers in the classroom and teachers' classroom management and control strategies can significantly influence students' academic performance ([Santrock, 1997](#)).

Further interpretation of the findings can be linked to the results of [Vianello et al. \(2010\)](#), who demonstrated that parental warmth and monitoring can enhance students' academic achievement and increase their classroom participation. Additionally, the influence of parenting styles continues throughout different stages of development. Parenting styles serve as reliable indicators of parental functioning and can predict children's well-being across a wide range of environments and societies. Extensive research on parent-child interactions indicates that parenting practices, behavioral patterns, and parental responses—commonly referred to as parenting styles—have long-lasting and profound effects on children's behavior, performance, adaptability, and overall development ([Salduzi, 2020](#)).

Regarding teacher-student relationships, studies have shown that schools where teachers adopt a highly participatory approach and maintain warm and supportive relationships with students tend to have healthier educational environments ([Bush & Groot-Johan, 2020](#)). Similarly, [Moriuya et al. \(2018\)](#) found that students who receive greater support from the school environment tend to have better relationships with teachers and peers, experience greater enjoyment in the academic environment, and demonstrate higher academic performance. Therefore, as [Grazia and Molinari \(2020\)](#) reported—and as confirmed by the findings of the present study—the components of student support, home-school relationships, student relationships, student-teacher relationships, academic environment, and interpersonal justice play a significant role in shaping parents' perceptions of school climate. The results of the model validity assessment also indicated that item validity (based on standardized factor loadings), internal consistency reliability (Cronbach's alpha values greater than 0.70), and composite reliability (CR values greater than 0.70) were all at acceptable and desirable levels.

One of the limitations of the present study relates to the sample characteristics, as the participants were limited to parents of sixth-grade students, which may restrict the generalizability of the findings to other educational levels. In addition, the data were collected using self-report measures, which may be subject to response biases such as unconscious defenses, social desirability, and self-presentation tendencies.

Considering these limitations, it is recommended that future studies focus on educating parents about effective parenting practices and strategies for creating a supportive emotional climate within families, where children's emotional needs are adequately addressed and acceptance, support, guidance, and affirmation are prioritized. Furthermore, it is suggested that the validity and reliability of this questionnaire be examined in other cities in Iran and across different educational levels. Finally, educational authorities are encouraged to provide training programs that increase awareness about school climate and its impact on students' academic success and overall development.

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